



ATM-Sonnet Network Node (SAKI)

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Planning Systems, Inc. (PSI) is a diversified high-technology company, founded in 1972 and headquartered in Reston, VA. It employs more than 300 technical staff in multiple locations nationwide. PSI provides applied science and systems engineering expertise, information technology (IT) applications and solutions, and custom products to the Federal Government and commercial clients. Fiscal year 2001 revenue was \$35 million, and revenues in FY2001 grew to \$38 million.

PSI has successfully performed on more than 400 government contracts and has won numerous repeat awards with over a dozen Federal agencies. We have consistently demonstrated that we not only have the technical breadth and depth required to support mission critical activities but are uniquely qualified to do so.

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SBIR Investment: \$536K

Non-SBIR Investment: >\$800K

Application of Standard Network Technologies to Surveillance Arrays



About the Technology

Planning Systems used models and prototypes to demonstrate that asynchronous transfer mode (ATM) technology offers performance advantages for surveillance arrays. Several prototype components were developed to use the ATM technology. A miniature low-power ATM-Sonnet network node (SAKI) was developed that uses 1 Watt or less power, is only 0.8 inches in diameter by 4 inches long, and is tolerant to 3000 PSI. An underwater 4-port ATM switch was also developed. The switch is capable of 622 Mbps switching speeds, low power, and has configurable physical layer interfaces to support bridging networks with disparate protocols and interfaces. By leveraging recent advances in ATM telemetry, these prototypes enabled Planning Systems to build a surveillance array sensor system that maximizes the benefits of open-architecture ATM technology while solving issues such as coherent sample rate clock distribution across sensor nodes.

Benefits to SPAWAR and Other DOD Programs

The Department of Defense, Great Britain Minister of Defense (MOD), and joint forces are migrating to network-centric systems (NCS) and the use of sensor networks (SNs) for increased accuracy, improved operational picture, faster response, and decreased total cost of system ownership. The SAKI network node and the 4-port ATM switch enable these activities to use the NCS and SNS to the maximum because they reduce network power, weight, and size by a factor of 10, enabling network-connectivity in space and power constrained applications.

Why ATM Improves the Technology

- Provides a low-power fundamental electronic building block for sensor networks and network-centric systems.
- Provides low latency for real-time applications.
- Compatible with standard network infrastructure gear.

Military and Commercial Significance

- Technology applied to SPAWAR fixed deployable systems, NATO Supreme Allied Commander Atlantic, Undersea Research Center Broadband Towed Array Sonar, MOD Wideband Towed Array Sonar and Underwater Deployable Acoustic Measurement System.
- Over \$800K in commercial sales related to seismic seafloor arrays, seismic towed arrays, image sensor networks, video sensor networks, urban security, and surveillance networks.

